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Patrick L. Edson

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EXAMINER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/809,152	Applicant(s) EDSON ET AL.	
	Examiner Stephen Alvesteffer	Art Unit 2175	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-10,12-36,38-50 and 52-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-10,12-36,38-50 and 52-59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This Office Action is responsive to the Request for Continued Examination (RCE) filed May 1, 2008. Claims 1, 3-10, 12-36, 38-40, 44-50, and 52-55 are amended. Claims 2, 11, 37, and 51 are cancelled. Claims 56-59 are new. Claims 1, 30, 44, and 59 are independent. Claims 1, 3-10, 12-36, 38-50, and 52-59 remain pending.

Claim Objections

Claim 56 is objected to because of the following informalities:

- Claim 56 recites a "medium", which lacks antecedent basis. The "medium" should be properly recited as a "computer readable storage medium", as recited in the parent claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-6, 25, 28, 30-33, 36, 42-47, and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Johnson et al. (hereinafter Johnson), United States Patent Application Publication number 2003/0001896.

Regarding claim 1, Johnson teaches a computer readable storage medium storing computer executable instructions that when executed on a processor manage a graphical interface, the medium storing:

instructions for providing a graphical interface, a hardware device and a software device being accessible through the graphical interface, the software device being accessible to a computer (see paragraph [0125]; *“a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of measurement devices may comprise a virtual measurement device”*);

instructions for providing at least one interactive hardware object accessible to the computer, where the hardware object represents the hardware device and is depicted in the graphical interface, the hardware object interacting with the hardware device (see paragraph [0099]; *“the graphical icon that visually represents the node represents the function, and the underlying program instructions and/or data structures which are represented by the node graphical icon are actually performing the function. Thus the specification and claims of the present application refer generally to a node performing a function, it being understood that the node includes or represents*

underlying program instructions and/or data structures which are executed by a processor (or programmable hardware element) to perform the function”);

instructions for providing a software object, wherein the software object is representative of the software device, where the software object is depicted in the graphical interface and is configured to be interactive with the software device (see paragraph [0255]; *“Upon execution of the graphical program, the node may receive the measurement task specification as input, invoke an expert system to analyze the measurement task specification and generate a run-time specification for the measurement task in response to the analyzing, as shown in 750 and 770 of FIG. 12”;* see also paragraph [0107]; *“The run-time builder may also provide various parameters to hardware and/or software resources or devices comprised in the system to configure the hardware and/or software devices in the system according to the run-time specification to allow these devices to be used during execution of the run-time 790. In other words, the run-time builder 780 may configure one or more measurement devices according to the run-time specification 770”);*

instructions for receiving, from a user, a plurality of configurations of the hardware object or the software object, each configuration allowing the user to edit at least one property of the hardware object or the software object (see Figure 26 and paragraph [0138]; *“the GUI may display a third panel, e.g., a channel configuration panel, which presents options for specifying values of one or more parameters for the indicated channel(s)”); and*

instructions for displaying the plurality of configurations simultaneously (see Figure 26 and paragraph [0138]; *“the GUI may display a third panel, e.g., a channel configuration panel, which presents options for specifying values of one or more parameters for the indicated channel(s)”*).

Regarding claim 3, Johnson teaches providing an analysis object, wherein said analysis object is adapted to communicate with at least one of said hardware object and said software object for analysis of data from at least one of said hardware object and said software object (see paragraph [0255]; *“Upon execution of the graphical program, the node may receive the measurement task specification as input, invoke an expert system to analyze the measurement task specification and generate a run-time specification for the measurement task in response to the analyzing, as shown in 750 and 770 of FIG. 12”*).

Regarding claim 4, Johnson teaches instructions for receiving code for execution by the hardware object (see Johnson paragraph [0099]; *“underlying program instructions and/or data structures which are executed by a processor (or programmable hardware element...)”*).

Regarding claim 5, Johnson teaches that a plurality of hardware objects are provided for a single hardware device (see paragraph [0100]; Johnson’s invention allows several different types of nodes to be created to accomplish various measurement tasks such as reading and writing to and from a measurement device).

Regarding claim 6, Johnson teaches that a plurality of hardware objects are provided for a plurality of hardware devices. (see paragraph [0100]; Johnson’s invention

allows several different types of nodes to be created to accomplish various measurement tasks such as reading and writing to and from a measurement device).

Regarding claim 25, Johnson teaches that the graphical interface is implemented with an extensible API (see Johnson paragraph [0158]).

Regarding claim 28, Johnson teaches that the graphical interface is adapted to operate on a plurality of operating systems (see Johnson paragraph [0053]; Although Johnson does not specify exactly which operating systems or exactly how many operating systems his invention supports, it is inherent and well-known in the art that software code is capable of executing on more than one different operating system).

Regarding claim 30, Johnson teaches a method for managing an interface, the method comprising:

providing a graphical interface, a hardware device and a software device being accessible through the graphical interface, the software device being accessible to a computer (see paragraph [0125]; *“a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of measurement devices may comprise a virtual measurement device”*);

providing at least one hardware object accessible to the computer, where the hardware object represents the hardware device and is depicted in the graphical interface, the hardware object configured to be interactive with the hardware device (see paragraph [0099]; *“the graphical icon that visually represents the node represents the function, and the underlying program instructions and/or data structures which are represented by the node graphical icon are actually performing the function. Thus the specification and claims of the present application refer generally to a node performing a function, it being understood that the node includes or represents underlying program instructions and/or data structures which are executed by a processor (or programmable hardware element) to perform the function”*);

providing at least one software object, representative of the software device, where the software object is depicted in the graphical interface, and is configured to be interactive with the software device (see paragraph [0107]; *“The run-time builder may also provide various parameters to hardware and/or software resources or devices comprised in the system to configure the hardware and/or software devices in the system according to the run-time specification to allow these devices to be used during execution of the run-time 790. In other words, the run-time builder 780 may configure one or more measurement devices according to the run-time specification 770”*) and the graphical interface being updated in response to a change in the hardware object or the software object (see Figure 26 and paragraph [0242]; *“parameters specific to the selected device may be configured in this panel. In this example, logic parameters related to the PCI-MIO-16E-1 device are shown, including high/low state levels, idle line*

state, and idle state pattern. Of course, when other devices are selected, other corresponding parameters and controls may be presented”); and

displaying the hardware object and the software object to a user (see Johnson Figure 16 and paragraph [0136; “*the GUI may display a second panel, e.g., a channels selection panel, which presents a list of available devices and corresponding channels. The available devices may correspond to the indicated measurement type. For example, if the selected measurement type were voltage, the devices listed may be those devices available to the system which are suitable for measurement a voltage. An example of the device and channel list is shown in FIG. 16*”).

Claims 31 and 36 recite a method with substantially the same limitations as claims 3 and 4. Therefore, the claims are rejected under the same rationale.

Claims 32 and 33 recite a method with substantially the same limitations as claims 5 and 6, respectively. Therefore, claims 32 and 36 are rejected under the same rationale.

Claims 42 and 43 recite a method with substantially the same limitations as claims 26 and 27, respectively. Therefore claims 42 and 43 are rejected under the same rationale.

Regarding claim 44, Johnson teaches a computing device comprising:
a storage medium for storing and a processor for processing (see Johnson claim 41; “*a processor; and a memory medium...*”);
a graphical interface, at least one hardware device and one software device being accessible through the graphical interface (see paragraph [0125]; “*a graphical*

user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of measurement devices may comprise a virtual measurement device”);

a plurality of hardware objects accessible to the computer, where each of the hardware objects represents a hardware device and is depicted in the graphical interface, each hardware object configured to be interactive with the hardware device (see paragraph [0099]; *“the graphical icon that visually represents the node represents the function, and the underlying program instructions and/or data structures which are represented by the node graphical icon are actually performing the function. Thus the specification and claims of the present application refer generally to a node performing a function, it being understood that the node includes or represents underlying program instructions and/or data structures which are executed by a processor (or programmable hardware element) to perform the function”);*

a plurality of software objects, each representative of a software device accessible to the computer, where each of the software objects is depicted in the graphical interface and is configured to be interactive with the software device (see paragraph [0255]; *“Upon execution of the graphical program, the node may receive the measurement task specification as input, invoke an expert system to analyze the*

measurement task specification and generate a run-time specification for the measurement task in response to the analyzing, as shown in 750 and 770 of FIG. 12”; see also paragraph [0107]; “The run-time builder may also provide various parameters to hardware and/or software resources or devices comprised in the system to configure the hardware and/or software devices in the system according to the run-time specification to allow these devices to be used during execution of the run-time 790. In other words, the run-time builder 780 may configure one or more measurement devices according to the run-time specification 770”); and

a display device to display the plurality of hardware objects and the plurality of software objects and at least one configuration of one of the hardware objects or one of the software objects to a user in a single graphical interface (see Johnson Figure 16 and paragraph [0136; “the GUI may display a second panel, e.g., a channels selection panel, which presents a list of available devices and corresponding channels. The available devices may correspond to the indicated measurement type. For example, if the selected measurement type were voltage, the devices listed may be those devices available to the system which are suitable for measurement a voltage. An example of the device and channel list is shown in FIG. 16”).

Claims 45 and 50 recite a system with substantially the same limitations as claims 3 and 4. Therefore, the claims are rejected under the same rationale.

Claims 46 and 47 recite a system with substantially the same limitations as claims 5 and 6, respectively. Therefore, the claims are rejected under the same rationale.

Regarding claim 56, Johnson teaches that the hardware object enables communication between the graphical interface and the hardware device, and the software object enables communication between the graphical interface and the software device (see paragraph [0125]; *“a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of measurement devices may comprise a virtual measurement device”*).

Claim 57 recites a method having substantially the same limitations as the computer readable storage medium of claim 56. Therefore, claim 57 is rejected under the same rationale.

Claim 58 recites a computing device having substantially the same limitations as the computer readable storage medium of claim 56. Therefore, claim 57 is rejected under the same rationale.

Regarding claim 59, Johnson teaches a computer readable storage medium storing computer executable instructions that when executed on a processor manage a graphical interface, the medium storing:

instructions for providing a graphical interface, at least one hardware device and one software device being accessible through the graphical interface (see paragraph

[0125]; *“a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of measurement devices may comprise a virtual measurement device”*), the graphical interface being updated in response to a change in the hardware device or the software device (see Johnson Figure 26 and paragraph [0242]; *“parameters specific to the selected device may be configured in this panel. In this example, logic parameters related to the PCI-MIO-16E-1 device are shown, including high/low state levels, idle line state, and idle state pattern. Of course, when other devices are selected, other corresponding parameters and controls may be presented”*);

instructions for providing a plurality of hardware objects accessible to the computer, where each of the hardware objects represents a hardware device and is depicted in the graphical interface, each hardware object configured to be interactive with the hardware device (see paragraph [0099]; *“the graphical icon that visually represents the node represents the function, and the underlying program instructions and/or data structures which are represented by the node graphical icon are actually performing the function. Thus the specification and claims of the present application refer generally to a node performing a function, it being understood that the node*

includes or represents underlying program instructions and/or data structures which are executed by a processor (or programmable hardware element) to perform the function”);

instructions for providing a plurality of software objects, each representative of a software device accessible to the computer, where each of the software objects is depicted in the graphical interface and is configured to be interactive with the software device (see paragraph [0255]; *“Upon execution of the graphical program, the node may receive the measurement task specification as input, invoke an expert system to analyze the measurement task specification and generate a run-time specification for the measurement task in response to the analyzing, as shown in 750 and 770 of FIG. 12”;* see also paragraph [0107]; *“The run-time builder may also provide various parameters to hardware and/or software resources or devices comprised in the system to configure the hardware and/or software devices in the system according to the run-time specification to allow these devices to be used during execution of the run-time 790. In other words, the run-time builder 780 may configure one or more measurement devices according to the run-time specification 770”);*

instructions for receiving, from a user, a plurality of configurations of the hardware object or the software object, each configuration allowing the user to edit at least one property of the hardware object or the software object (see Figure 26 and paragraph [0138]; *“the GUI may display a third panel, e.g., a channel configuration panel, which presents options for specifying values of one or more parameters for the indicated channel(s)”);* and

instructions for displaying the plurality of hardware objects and the plurality of software objects and at least one of the plurality of configurations of one of the hardware objects or one of the software objects to a user in a single graphical interface (see Johnson Figure 16 and paragraph [0136; *"the GUI may display a second panel, e.g., a channels selection panel, which presents a list of available devices and corresponding channels. The available devices may correspond to the indicated measurement type. For example, if the selected measurement type were voltage, the devices listed may be those devices available to the system which are suitable for measurement a voltage. An example of the device and channel list is shown in FIG. 16"*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 8, 12-14, 34, 35, 38, 48, 49, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra* and Fuller, III et al. (hereinafter Fuller), United States Patent Application Publication number 2003/0035008.

Regarding claim 7, Johnson teaches every limitation of claim 7 except instructions for scanning for available hardware; and instructions for creating an additional hardware object for each hardware device detected and not already

associated with a hardware object. Fuller teaches a method and apparatus for controlling an instrumentation system that automatically scans for available hardware (instruments) and allowing users to select hardware (instruments) from a list of detected hardware (instruments) (see paragraph [0020], *“the computer system may automatically detect the one or more message-based instruments that are connected to the computer system. In other words, the computer system may automatically scan for message-based instruments coupled to the system”*). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the scanning for available hardware of Fuller with the invention of Johnson in order to allow custom hardware components to be added to the system.

Regarding claim 8, Johnson/Fuller teaches all the steps of claim 8 except that instructions for scanning involves instructions for receiving user-defined commands to be sent to the hardware device to attempt to identify the hardware device. Fuller teaches allowing the user to initiate a hardware scan. A user-initiated hardware scan is being interpreted with the broadest reasonable interpretation to be the same as sending user-defined command to a hardware device (see paragraph [0020], *“A user interface (UI) may be provided that allows the user to initiate a scan for message-based instruments. The user may scroll through and select an instrument from a list of detected instruments, or may otherwise specify a particular instrument to be communicated with”*). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the user-initiated hardware scan of

Fuller with the invention of Johnson in order to allow custom hardware components to be added to the system on demand.

Regarding claim 12, Johnson/Fuller teaches every limitation of claim 12 except that at least one of instructions for providing at least one hardware object and providing at least one software object further comprises instructions for accessing at least one of a hardware object and a software object located on a remote computer. Fuller teaches that tasks associated with hardware instruments may be created and made accessible on a web site (see paragraph [0168]; "*Tasks may be collected and organized for distribution, for example through a website*"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the invention of Fuller with the invention of Johnson in order to allow measurement or testing over a network.

Regarding claim 13, Johnson/Fuller teaches every limitation of claim 13 except that instructions for accessing is performed through a web page. Fuller teaches that tasks associated with hardware instruments may be created and made accessible on a web site (see paragraph [0168]; "*Tasks may be collected and organized for distribution, for example through a website*"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the invention of Fuller with the invention of Johnson in order to allow measurement or testing over a network.

Regarding claim 14, Johnson/Fuller teaches every limitation of claim 14 except that instructions for accessing is performed over a network. Fuller teaches that tasks associated with hardware instruments may be created and made accessible on a web

site (see paragraph [0168]; “*Tasks may be collected and organized for distribution, for example through a website*”). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the invention of Fuller with the invention of Johnson in order to allow measurement or testing over a network.

Claims 34 and 35 recite a method with substantially the same limitations as claims 7 and 8, respectively. Therefore, the claims are rejected under the same rationale.

Claim 38 recites a method with substantially the same limitations as claim 12. Therefore, claim 38 is rejected under the same rationale.

Claims 48, 49, and 52 recite a system with substantially the same limitations as claims 7, 8, and 12, respectively. Therefore, the claims are rejected under the same rationale.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra* and Hsiung et al. (hereinafter Hsiung), United States Patent Application Publication number 2003/0083756.

Regarding claim 9, Johnson teaches all the elements of claim 9 except that the analysis object filters data. Hsiung teaches a system for monitoring industrial components with an analysis component that performs filtering (see paragraph [0056]; “*The upload process takes data from the acquisition device and uploads them into the main process manager 314 for processing. Here, the data are in electronic form. In embodiments where the data has been stored in data storage, they are retrieved and*

then loaded into the process. Preferably, the data can be loaded onto workspace to a text file or loaded into a spread sheet for analysis. Next, the filter process 302 filters the data to remove any imperfections”). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the filtering of data of Hsiung with the invention of Johnson for the purpose of providing data analysis functionality.

Regarding claim 10, Johnson teaches all the elements of claim 10 except that the analysis object plots data. Hsiung teaches a system for monitoring industrial components with an analysis component that performs plotting of data (see paragraph [0058]; *“A baseline correction process may also find response peaks, calculate $\Delta R/R$, and plot the $\Delta R/R$ verses time stamps, where the data have been captured”*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the plotting of data of Hsiung with the invention of Johnson for the purpose of providing data analysis functionality.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra*, Fuller (2003/0035008) *supra*, and Hsiung (2003/0083756) *supra*.

Regarding claim 15, Johnson/Fuller teach every limitation of claim 15 except that instructions for accessing is performed by passing commands over the network in a MATLAB environment. Hsiung teaches using MATLAB in association with the invention (see paragraph [0534]; *“Multi-way PCA is a natural choice since PCA is already included, algorithms are available for evaluation in Matlab toolboxes, and the technique*

serves as a good benchmark when discussing benefits of other algorithms"). It would have been obvious to one of ordinary skill in the art that the MATLAB environment could be used as taught by Hsiung with the invention taught by Johnson/Fuller.

Claims 16-17, 27, 39, 40, 43, 53, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra* and Schmit et al. (hereinafter Schmit), United States Patent Application number 2003/0004670.

Regarding claim 16, Johnson teaches every limitation of claim 16 except instructions for modifying at least one of the hardware object and the software object. Schmit teaches a system and method for building a measurement system in which the most efficient protocol to use with each measurement device is determined and applied (see Schmit paragraph [0500]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the hardware protocol selection system of Schmit with the invention of Johnson for the purpose of making the measurement system more efficient.

Regarding claim 17, Johnson/Schmit teaches that modifying specifies a protocol for use by the hardware object for communication with the hardware device (see Schmit paragraph [0500]).

Regarding claim 27, Johnson/Schmit teaches instructions for generating an analysis object that can be used in SIMULINK (see Johnson paragraph [0101]; Johnson's invention makes use of the LabVIEW environment for generating analysis

objects; see also Schmit paragraph [0619]; Schmit teaches that SIMULINK is similar in function to LabVIEW).

Claims 39 and 40 recite a method with substantially the same limitations as claims 16 and 17. Therefore, claims 39 and 40 are rejected under the same rationale.

Claim 43 recites a method with substantially the same limitations as claim 27. Therefore, claim 43 is rejected under the same rationale.

Claims 53 and 54 recite a system with substantially the same limitations as claims 16 and 17. Therefore, claims 53 and 54 are rejected under the same rationale.

Claims 18-24, 26, 41, 42, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra*, Hsiung (2003/0083756) *supra*, and Pike et al. (hereinafter Pike), United States Patent Application Publication number 2003/0056018.

Regarding claim 18, Johnson/Hsiung teaches every limitation of claim 18 except that modifying modifies a value stored in an array of an array-based environment. Pike teaches a system for linking users to control instruments wherein an array-based environment can be used to change the properties of the control instruments (see Pike paragraph [0010]; “*The user may also create an object array in response to an array creation command. The object array includes as elements, a first and a second instrument object. The user may change the properties of the first and second communication channels by changing properties of the object array*”; see also Pike paragraph [0070]; “*The array-based environment 104 includes functions used by the*

user 30 to create an instrument object 108 through function calls 46, as well as to configure an instrument object's properties and to connect the instrument object with one of the control instruments 22"). Pike further teaches that the graphical user interface can be used to export data to an array-based environment such as MATLAB (see paragraph [0040]; "User 30 may send a list of requests or commands to processor 20 from the GUI 14 to establish a communication channel between the computer 12 and the control instruments 22. The user 30 does so by writing a user program 80, which resides in memory 26 of computer 12. The user program 80 may be associated with the syntax of, for example, any interpreted programming environment. An interpreted programming environment may be any proprietary program that performs mathematical computations for modeling, simulation, graphics, or data analysis related to control instruments, among many others. An example of an interpreted programming environment is MATLAB.RTM. from MathWorks, Inc., of Natick, Mass"). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the array-based environment steps of Pike with the measurement systems of Johnson/Hsiung in order to provide array-based control of the measurement devices.

Regarding claim 19, Johnson/Hsiung/Pike teaches instructions for modifying a value stored in an array of an array-based environment, thereby modifying at least one of the hardware object and the software object (see Pike paragraphs [0010], [0070], and [0040]).

Regarding claim 20, Johnson/Hsiung/Pike teaches instructions for exporting data from the graphical interface to an array-based environment (see Pike paragraphs [0010], [0070], and [0040]).

Regarding claim 21, Johnson/Hsiung/Pike teaches instructions for converting user actions with the graphical interface into code (see Pike paragraphs [0010], [0070], and [0040]; Pike teaches converting user actions with the graphical interface into interpreted programming code capable of performing mathematical computations for modeling, simulation, graphics, or data analysis related to control instruments).

Regarding claim 22, Johnson/Hsiung/Pike teaches that the code is created in a MATLAB environment (see Pike paragraphs [0010], [0070], and [0040]; Pike teaches converting user actions with the graphical interface into interpreted programming code capable of performing mathematical computations for modeling, simulation, graphics, or data analysis related to control instruments).

Regarding claim 23, Johnson/Hsiung/Pike teaches that the code comprises steps to create an analysis object, configure the analysis object and write and read data from the analysis object (see Pike paragraphs [0010], [0070], and [0040]; Pike teaches converting user actions with the graphical interface into interpreted programming code capable of performing mathematical computations for modeling, simulation, graphics, or data analysis related to control instruments).

Regarding claim 24, Johnson/Hsiung/Pike teaches that the code comprises an analysis routine (see Pike paragraphs [0010], [0070], and [0040]; Pike teaches converting user actions with the graphical interface into interpreted programming code

capable of performing mathematical computations for modeling, simulation, graphics, or data analysis related to control instruments).

Regarding claim 26, Johnson/Hsiung/Pike teaches instructions for generating an analysis object so that the analysis object can be used in MATLAB (see Pike paragraph [0040]).

Claim 41 recites a method having substantially the same limitations as claim 18. Therefore, claim 41 is rejected under the same rationale.

Claim 42 recites a method having substantially the same limitations as claim 26. Therefore, claim 42 is rejected under the same rationale.

Claim 55 recites a system having substantially the same limitations as claim 18. Therefore, claim 55 is rejected under the same rationale.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra* and Phathayakorn et al. (hereinafter Phathayakorn), United States Patent number 5,986,653.

Regarding claim 29, Johnson teaches every limitation of claim 29 except that the graphical interface comprises a tree view, wherein the tree view groups the hardware objects and the software objects by a functionality characteristic. Tree views of hardware and software objects grouped by functionality were a well-known graphical user interface technique at the time the invention was made. Phathayakorn shows selecting a functional group of objects from a tree view graphical representation (see Figures 2A-5B). It would have been obvious to one of ordinary skill in the art at the time

the invention was made to apply the tree view graphical representation of Phathayakorn to the invention of Johnson in order to provide a representation of the devices on the user interface.

Response to Arguments

Applicants assert that Johnson fails to disclose instructions for displaying the plurality of configurations simultaneously. The examiner respectfully disagrees.

Johnson states in paragraph [0138], *“the GUI may display a third panel, e.g., a channel configuration panel, which **presents options for specifying values of one or more parameters** for the indicated channel(s)”* (emphasis added). Figure 26 of Johnson shows an example displaying the plurality of device configurations simultaneously.

Applicants assert that Johnson does not disclose the graphical interface being updated in response to a change in the hardware object or the software object. The examiner respectfully disagrees.

Johnson describes Figure 26 in paragraph [0242], *“parameters specific to the selected device may be configured in this panel. In this example, logic parameters related to the PCI-MIO-16E-1 device are shown, including high/low state levels, idle line state, and idle state pattern. Of course, when other devices are selected, other corresponding parameters and controls may be presented”*. Here, Johnson provides an interface for changing various settings of a device. When a user makes a change to the

device, that change is reflected in the graphical user interface (the graphical interface is updated).

Applicants assert that Johnson does not disclose a display device to display the plurality of hardware objects and the plurality of software objects and at least one configuration of one of the hardware objects or one of the software objects to a user in a single graphical interface. The examiner respectfully disagrees.

Johnson Figure 16 depicts a single graphical interface displaying the plurality of hardware objects and the plurality of software objects and at least one configuration of one of the hardware objects or one of the software objects. Johnson describes this in paragraph [0136], *"the GUI may display a second panel, e.g., a channels selection panel, which **presents a list of available devices** and corresponding channels. The available devices may correspond to the indicated measurement type. For example, if the selected measurement type were voltage, the devices listed may be those devices available to the system which are suitable for measurement a voltage. An example of the device and channel list is shown in FIG. 16"* (emphasis added). Figure 18A shows **the same graphical interface** after channels have been selected, where users may view and edit configurations of the devices.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Sesek et al., United States Patent Application Publication 2002/0174209,
Device configuration in a distributed environment
- Shah et al., United States Patent Application Publication 2004/0032429,
Selecting a connectable element of a hardware device in a measurement
system

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Alvesteffer whose telephone number is (571)270-1295. The examiner can normally be reached on Monday-Friday 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Bashore can be reached on (571)272-4088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2175

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